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concerning the project, including company-specific safety rules and known site conditions. This meeting may not be necessary for all contractors.

## 3.2 Project Safety Plan

Applies to: High and medium risk ranked contractors in detail commensurate with the scope of the project or activities.

- 1 Contractors who perform high risk-ranked services shall submit a project-specific safety plan prior to the pre-construction meeting. Your National Grid representative will provide you with specific requirements of the format and/or forms to be completed.
- 2 At a minimum, the project safety plan shall refer to a completed safety hazards checklist and the Emergency Contact Sheet. This format is ideal for short-duration, small, and/or simple projects. This minimum safety plan shall be referred to as the SHORT VERSION.
- 3 For long-term, large, and/or complicated projects, the National Grid representative will require the contractor to complete a more formalized safety plan. This plan shall be referred to as the LONG VERSION.
- 4 At a minimum, the LONG VERSION safety plan shall include the following elements:
  - a. Roles and responsibilities

The plan shall identify who will be responsible for the project oversight and their qualifications. For example, if the work requires excavation, there must be someone on-site who would be qualified as a competent person.

For multi-employer work-sites, the general contractor is responsible for all their employees and subcontractors. The safety plan shall clearly state this responsibility.

#### b. Scope of work

Briefly state the scope of work as provided by National Grid. The plan must specifically address the project or services requested by National Grid. Therefore, these plans should be short and-to the-point.

c. Task and hazard identification and risk assessment of the hazards

The contractor shall identify all significant tasks and the anticipated hazards. National Grid calls this process a risk assessment.

The contractor's cost to provide adequate safety measures and to comply with National Grid requirements must be considered and budgeted in the bid/proposal.

d. Hazard mitigation/control procedures and work methods

For each hazard, the contractor shall specify measures that will be taken to mitigate these hazards.

A table format is the simplest way to organize and present the task, hazard, and mitigation steps. For example:

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# **Hazard Mitigation Procedures and Work Methods**

Location:	Substation Yard		
Task	Hazard	Mitigation Steps	
Material Handling	Contact with overhead ener- gized lines/equipment	Off load in the clear and have a safety observer present	

e. Incident Analysis and Reporting

Follow the requirements referenced in this document.

f. Compliance Monitoring

Explain how you will ensure that both your employees and subcontractors will achieve safety compliance

g. Environmental Compliance

Based on the scope of the work, any anticipated environmental risks shall be addressed by following all applicable National Grid procedures. Refer to EP-6, Appendix-A, environmental checklist.

#### 3.3 Contractor Orientation

Applies to: All contractors, as needed,

- 1 Contractor orientation shall be conducted by a National Grid Representative and is intended to serve as a resource in order to provide the contractor with the tools necessary to educate their employees and subcontractors. The session is not intended to train the contractor management, their employees, or subcontractors.
- 2 The extent and content of the orientation session shall be commensurate with the scope and type of the contractor's activities.
- 3 The contractor shall agree to provide management representation at the orientation session.
- 4 After the completion of the orientation session, a contractor management official shall certify in writing that:
  - a. The contractor has been informed of National Grid safety requirements; (2) that employees and subcontractors have the appropriate qualifications to perform the work, and;
  - b. The contractor agrees to comply with all applicable safety requirements. The certification shall be in the form of a "Letter of Assurance", printed on the contractor's letterhead, signed by a principal of the contractor, and delivered to your company's National Grid contact.

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#### 3.4 Worker Qualification Assurance

Applies to: All contractors, as-needed.

- In order to meet National Grid safety requirements, the contractor must describe how workers, including subcontractors, are qualified. The contractor must supply information concerning the type of skills assessment performed, training programs and how they ensure that employees demonstrate competencies. National Grid reserves the right to certify contractor competency as needed.
- 2 The contractor management official shall certify the contractor has been informed of National Grid safety requirements; that employees and subcontractors have the appropriate qualifications to perform the work, and; that the contractor agrees to comply with all applicable safety requirements.
- 3 The bidder shall supply the backgrounds and qualifications for all management personnel through resumes, behavioral observations or other documents. National Grid shall interview and approve management personnel if considered necessary.
- 4 Contractors bidding on new work provide this information to the National Grid purchasing agent via the "Bidder Information Request" form.

## 3.5 Pre-Construction Meeting

Applies to: High Risk Ranked Projects or Activities

- 1 National Grid holds a pre-construction or project kickoff meeting with the contractors prior to the start of a high risk-ranked project.
- 2 The contractor's Project Safety Plan will be discussed at this meeting including a final review of the safety hazards checklist to insure a proper hazard mitigation plan.
- 3 These hazard mitigation measures shall be reviewed and work shall not commence until these hazards have been adequately addressed. The Owners Representative, or other user representative, will discuss with the contractor the methods by which compliance will be achieved with National Grid safety requirements.
- 4 An Emergency Call List should be exchanged with the contractor. This list must contain 24-hour contact information for key contractor and project personnel, including Owners Representative and Safety Specialists. This list should be distributed to all concerned, as determined by the project team, prior to the start of work.
- 5 For routine maintenance services, a review of associated safety issues and specific facility issues, restrictions or practices, such as evacuation procedures, must be discussed with the contractor upon initial hiring. Any changes in the facility that may affect the safety of contractor or National Grid employees or third parties must be communicated immediately.

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# 3.6 Safety Meetings

Applies to: All contractors, as-needed.

- 1 The contractor shall have regular monthly safety meetings with their employees and subcontractors.
- 2 The safety meetings shall be documented in writing, and shall be available for inspection during the project period, and for 30 days after the project is completed.

## 3.7 Job Safety Briefs

Applies to: All contractors, as-needed.

- 1 Job safety briefs shall be documented in writing. Written job safety briefs shall be available at the job site for inspection and retained for 30 days after the job is completed.
- 2 Each crew shall conduct these job safety briefs prior to each day's work, when there are changes to the work order or plan, and when a new worker joins the crew additional briefs are required.
- 3 Each worker must have the opportunity to voice concern. The work cannot begin until each worker signs off on the job safety brief stating that they have discussed the work and agree with the plan.

## 3.8 Incident Analysis

Applies to: All contractors (regardless of risk ranking).

- All contractors are required to report to National Grid, any work-related incidents involving injury or illness to employees, the public or property damage to the contractor's or National Grid's equipment. The first priority is to ensure that the injured receive medical treatment.
- 2 Your National Grid contact will explain these reporting requirements in more detail prior to commencement of work.
- An incident is defined as an unplanned event that has a human component, and results in, or could potentially result in, at least one of the following outcomes: (1) harm to people;
   (2) damage to property; (3) adverse public impact.
- 4 There are four categories of incidents:
  - a. Injury incidents that cause harm to people;
  - b. Property Damage incidents that cause damage to property;
  - c. Adverse Public Impact incidents that disrupts service to the public or results in adverse public reaction;
  - d. **Near-Miss** an incident which had the potential under different circumstances to result in an injury.

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### 4.4 Isolation of Energized Apparatus

Applies to: All contractors, as-needed.

# 4.4.1 Non-Reclosing Criteria and Live-Line Maintenance and Construction

The appropriate interrupting devices (breakers, reclosers, circuit switches, etc.) will be placed on NON-RECLOSING in accordance with National Grid tagging procedures.

### 4.4.2 Tagging Out Lines or Apparatus

The Owners Representative or other designated representative shall coordinate all switching and tagging in accordance with the most current EOP on Clearance and Control.

#### 4.4.3 Grounding

When National Grid switches out lines or apparatus, any grounds that may be installed shall only be considered a visual reference, and shall not be considered a means to protect the Contractor's employees. The Contractor is responsible to install their personal grounds, in accordance with all OSHA, Federal, State and local safety procedures'. National Grid will provide guidance on the minimum size of the grounds to be used based on circuit available fault current. T-Bar ground rods are not to be used on National Grid property.

#### 4.4.4 Grounding Mobile Equipment

When mobile equipment requires grounding, it shall be solidly grounded by means of appropriate sized copper cable. The cable shall be fastened to a securely attached clean metallic portion of the equipment, or shall be fastened to a grounding stud provided for the purpose at one end and an adequate ground at the other end.

# 4.4.5 Minimum Approach Distance (MAD)

Follow minimum approach distance (MAD) tables: clearance OSHA tables' unqualified distances are 10 feet and up depending on voltage. See section 4.7

#### 4.5 Appointment of a Safety Observer

Applies to:All contractors, as-needed.

If work is being performed where there is a potential for persons or equipment to come in contact with energized equipment, a Safety Observer will be appointed by the contractor to aid in protecting employees and others from hazards. The Safety Observer will be a "Qualified Electrical Worker" with the training and experience specified in OSHA regulations, specifically the "Electric Power Generation, Transmission and Distribution Standard" 29 CFR 1910.269.

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2 The Safety Observer will be appointed while positioning trucks, cranes or other equipment and where precise placement is required to avoid contact with or damage to existing equipment or circuits; while moving loads overhead that may come within OSHA clearance requirements; or at other times where assistance is needed to help direct specific tasks for the protection of personnel or property.

#### 4.6 Work Zone Traffic Control

Applies to:All contractors, as needed.

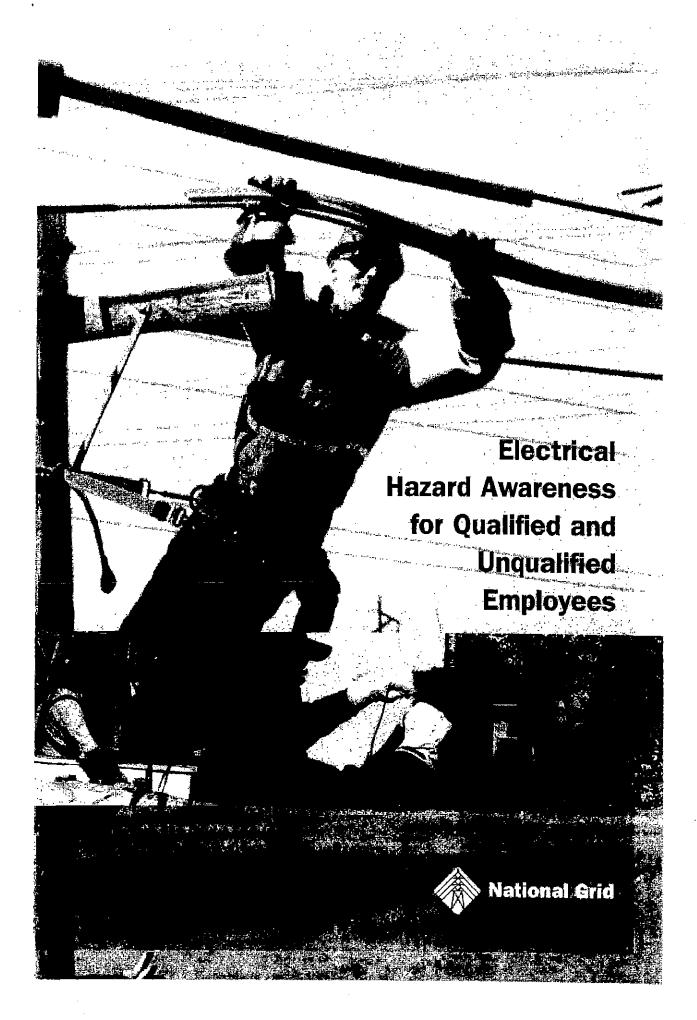
- 1 If work activity is on or near a road, the contractor and their subcontractors will comply with all applicable parts of the most current US Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD).
- 2 If working in areas covered by state permits issued to National Grid, contractors are required to comply with the provisions (work practices and notifications) of the permit language.

### 4.7 Qualified Electrical Workers

Applies to: Electrical Projects/Activities.

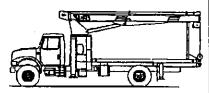
- 1 National Grid expects that electrical contractor employees will already be electrically-qualified as required by OSHA in 29 CFR 1910.269.
- 2 OSHA defines a qualified electrical worker or "qualified employee" as a person knowledgeable in the construction and operation of the electrical power generation, transmission and distribution equipment involved and the associated hazards. According to 1910.269(a)(2)(ii), a qualified employee must be trained and competent in:
  - a. The skills and techniques necessary to distinguish exposed live parts of electrical equipment;
  - b. The skills and techniques necessary to determine the nominal voltage of exposed live parts;
  - c. The minimum approach distances specified in 1910.269 corresponding to the voltages to which the qualified employee will be exposed, and;
  - d. The proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment.
- 3 Until these qualified employees have demonstrated proficiency in the work practices involved, they are considered to be employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of a "qualified employee", the employee also must have demonstrated an ability to perform work safely at his or her level of training.
- 4 National Grid requires contractors with electrically qualified employees to provide documentation on how they qualify their workers.

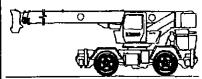
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# SECTION 7: Cranes and Construction Equipment Clearances

A. Minimum Approach Distances of Cranes and Construction Equipment





# MINIMUM APPROACH DISTANCES FOR VEHICULAR AND MECHANICAL EQUIPMENT

Voltage	New York Electrically Qualified	New England Electrially Qualified	OSHA General¹
5-15kV	2 ft 2 in	2 ft 1 in	10 ft
23-34.5kV	3 ft	2 ft 4 in	10 ft
46-69kV	4 ft	3 ft	10 ft 8 in
115kV	5 ft	3 ft 2 in	12 ft 4 in
230kV	7 ft	5 ft 3 in	16 ft
345kV	9 ft	8 ft 6 in	20 ft
345kV-800kV	10 ft		21 ft
345kV-362 kV		8 ft 6 in	
500kV-550kV	<b>11</b> ft <b>3</b> in		
765kV-800kV		14 ft 11 in	

<sup>&</sup>lt;sup>1</sup>General clearances are for unqualified equipment operators.

If equipment could become energized, the operation shall comply with at least one of the following:

- The energized lines exposed to contact shall be covered with portable insulating equipment that will withstand the type of contact that might be made during the operation.
- The equipment shall be insulated for the voltage involved.
   The equipment shall be positioned so that the uninsulated portions cannot approach the lines or equipment any closer than the minimum approach distances.

- Each employee shall be protected from hazards that might arise from equipment contact with energized lines.
   The measures used shall ensure that employees will not be exposed to hazardous differences in potential through:
  - Using the best available ground to minimize the time the line remains energized.
  - b. Bonding equipment together to minimize potential differences.
  - Providing ground mats to extend areas of equipotential, and
  - Employing portable insulating protective equipment or barricades to guard against any remaining hazardous potential differences.
- B. Grounding of Cranes and Construction Equipment

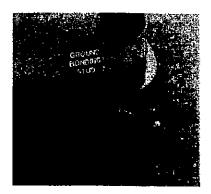
If the equipment or load is being operated within 25 feet of electrical equipment, the vehicle must be grounded with a 1/0 copper ground wire or larger. A responsible party (other than the equipment operator) must be posted to observe and ensure these clearances are maintained.

#### **KEY POINTS:**

- The minimum approach distances for construction equipment depend on the qualifications of the operator. Most crane operators are not qualified personnel in this definition. National Grid qualified personnel are considered qualified to operate equipment such as a crane or backhoe up to the minimum approach distances for the energized circuits or equipment.
- 2. The rubber tires of a vehicle are not an insulator. Rubber tires are made with steel belts and have black carbon in the rubber which makes them somewhat conductive. They can and have been a path for current flow when a crane makes contact with an energized line. In some cases, the tires have blown out from heat generated when current flows through them.
- 3. The crane operator is protected by being a "bird on a wire" if contact is made. The operator should not exit/move if contact is made until it can be cleared. If the operator must exit, it must be done by jumping clear, not touching the vehicle and ground at the same time.

- 4. Grounding of the construction equipment is an aid to tripping of the line if contact is made. It does not adequately protect personnel in contact with the crane and the ground from touch and step potentials. Do not touch the crane. Wear rubber gloves if controls are operated from the ground.
- 5. When attaching or disconnecting the ground from the construction equipment, wear rubber gloves as additional protection from touch potential.





Grounding is an aid to the tripping of the circuit if accidental contact is made.

#### **EXCLUSIONS:**

Grounding of vehicles does not apply to the following:

- Aerial buckets when performing routine street light maintenance beneath primary distribution and transmission circuits.
- 2. Street light maintenance trucks with the aerial portions insulated from the truck body.
- Insulated aerial buckets when trimming trees or doing line work.

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## 4.8 Qualifying Non-Electrical Workers

Applies to:All contractors, as-needed.

Qualifying non-electrical workers to work near energized lines and equipment

- 1 The contractor must provide orientation for non-electrical workers for the purpose of entering and working within restricted areas such as a substation. This is a critical component of contractor orientation for all non-electrical contractors who will be working near energized lines and equipment (for example, civil contractors).
- 2 The information provided to these workers must meet the requirements of paragraph 1910.269(a)(2)(ii). However, the orientation and training would not be as comprehensive as the training normally provided to a qualified electrical worker.

They must know:

- a. What is safe to touch and what is not safe to touch in the specific areas they will be entering;
- b. The maximum voltage of the area;
- c. The minimum approach distances for the maximum voltage within the area:
- d. Proper use of protective equipment that will be used to provide protection for them and in the work practices necessary for performing their specific work assignments within the area.
- Until these workers have demonstrated proficiency in the work practices involved, they are considered to be employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of a "qualified employee", the employee also must have demonstrated an ability to perform work safely at his or her level of training. It is expected that an orientation familiarizing the employee with the safety fundamentals above will be conducted before the worker is allowed to enter a restricted area.

#### 4.9 Asbestos Hazards Electrical & Gas

Applies to: All contractors, as-needed.

- 1 Asbestos materials associated with electrical and gas equipment includes, but is not limited to: cement-type cable covering, cable wrap, wire coatings, coal tar pipe wrap, and transite panels and conduits. Removal of this material must be done by individuals specifically trained and qualified to handle asbestos.
- Where asbestos material is present and likely to be disturbed, the National Grid representative and contractor shall coordinate how the asbestos hazard will be managed.

Electrical or gas contractors who will encounter asbestos as part of their electrical or gas work shall reference in their safety plan how they will address this hazard.

# LG Constructors

JOB HAZARD ANALYSIS & DAILY LOB BRIEFING MANUAL FOR "T" LINE

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# SAFETY, HEALTH AND ENVIRONMENTAL PLAN

LG CONSTRUCTORS

# SUBCONTRACTORS AND RESPONSIBILITIES:

# LG Constructors - Prime Contractor

- LG Constructors Subcontractors for Empire Gen #5 line
  - o Michels Corporation:
    - Responsibilities:
      - To Install drilled foundations
      - Construct temporary transmission line for segment one
      - Erect and Install new 345kV Transmission line that will be known as the Empire Gen #5 line.
    - Michels Subcontractors:
      - Northern Clearing Inc. (NCI)
        - Responsibilities;
          - Clear right of way acceptable to LG and National Grid standards.
          - Install environmental control devices in compliance with LG, N-Grid, and NY DPS.
          - Build access roads and structure pads to Michels specifications.

# LG Constructors Safety and Health Plan Empire Gen #5 Line, 345kv Transmission Line with Drilled Foundations.

# Project Personnel Roles and Responsibilities

LG Constructors, as the Prime Contractor, will be responsible for the safety of its employees and the employees of subcontractors. LG Constructors will ensure that all employees on site will have the skills and qualification necessary to perform their job safely and effectively in accordance with all regulatory requirements. Key Project personnel are listed below.

# Project Manager - Russel Keson

The Project Manager will have the responsibility for moniforing and enforcing LGC's and National Grid's safety requirements. The Project Manager has full authority to immediately correct any safety hazard as deemed appropriate. The Project Manager shall:

- Serve as the Competent Person and delegate qualified employees as necessary to serve as a Competent Person
- Meet with the site supervisors at the start of each day to review the specific work tasks
- Walk the site to investigate any potential safety hazards
- Where hazards are observed, take prompt corrective action
- Have the authority to order a work stoppage in the event of a serious safety issue.

# Project Safety Manager - James Petriella

- Assist the Off Site Safety Manager in whatever capacity required
- Conduct site specific safety orientation of all field personnel
- Audit the project for compliance with safety regulation and standards

# Off Site Safety Manager - Paul Conner

- Be in charge of the day-to-day details of the project specific safety plan
- Ensure that work is performed in accordance with the company work procedures, the National Grid requirements and the Safety and Health Plan
- Walk the job site at the end of each day to ensure a safe environment
- Where hazards are observed, take prompt corrective action
- Have the authority to order a work stoppage in the event of a serious safety issue

# Off Site Electrical Superintendent

In charge of the following:

- 8.1 miles of clearing and grubbing, this includes the removal of all tall growing species of trees within the 100' right-of-way, removal of danger trees, and protection of wetland areas. Within the clearing and grubbing scope of work is installing all access roads and structure pads needed to perform foundation installation as well as new transmission line construction.

- Installation of a temporary transmission line utilizing wood pole construction in segment one for clearance to install the drilled foundations with concrete footings for the permanent steel pole design of the Empire Gen #5 line, Crews will set wood poles using direct burial methods, frame structure, and string temporary conductor.
- Drilled foundation construction throughout the 8.1 miles of transmission line work for the Empire Gen #5 line. Subcontractor will drill foundations, and in some locations pour concrete footings for the steel poles to be erected in conjunction with the Empire Gen #5 line. Locations not requiring concrete foundations will still have drilled foundations, but will be utilizing direct burial into earth methods for the erection of the steel poles. Crews will drill and excavate earth, haul off spoil, install re-bar cages, install anchor bolt clusters, and pour concrete foundations.

# **Qualifications**

James Petriella - HazWop 40, OSHA 30 and Excavation, 1st Aid, CPR and AED.

Paul Conner - OSHA 500, 1st Aid, CPR, AED, Disaster Site Trainer.

Greg Miller - Distribution Helicopter Specialist for 500kv, Journeyman IBEW, Transmission Hot Stick, 500kv Bare Hand School, Electrical Theory, Cable Splicing, Substations, Transformers, Load Management and Switching, URD Layout and Installation.

# HAZARD IDENTIFICATION AND RISK ASSESSMENT

### HAZARD / RISK ASSESSMENT

Prepared by:	Fred Rose	Date: August 26, 2008		
Location: Albany NY area				
	Hazard Identification a	nd Risk Assessment Worksheet		
This table pres Hazard Analys	ented the Initial evaluation of the over is binder for more specific information	all hazards of the construction job. Please refer to the Job regarding the hazards and control measures of the project.		
Activity:	Erect and install new Empire Gen #5 Transmission Line	Overall Low Medium <u>High</u> Risk:		
Major Tasks	Hazard	Controls/Mitigation Steps: Engineering; Administrative: PPE		
Gas and Electrical Transmission Construction	Construction activities adjacent to energized transmission lines; traffic; cross and work adjacent to railroads; tie into gas line; hoisting and rigging issues; excavation issues.	<ul> <li>Conduct a daily job briefing and confirm everyone is aware of the risks and what their tasks are;</li> <li>Maintain MAD to energized equipment.</li> <li>Use Safety Observer when needed</li> <li>Barricade work area;</li> <li>Use proper slings, and rated lifting equipment</li> <li>Shore- up excavation when required.</li> <li>Pre-inspection of all equipment/tools before use;</li> <li>Maintain 100% tie off for heights greater than 6' and conduct inspections of fall protection devices before use.</li> </ul>		

# 3.2 Project-Specific Hazard Identification, Risk Assessment and Controls

	Project Specific Hazard Identification and Risk Assessment Worksheet					
Prepa	Prepared by: Fred Rose Date: October 7, 2008					
Locat	Location:					
	TASK	HAZARD	MITIGATION			
L M	Mobilization /Material Handling					
	Unlocding vehicles & heavy equipment	Lifting equipment failures	Barricade work area. Wear PPE where required. Inspect and all lifting and rigging			
•	Lifting rebur and placement	Persons struck by equipment, vehicles	equipment before use. Use properly rated slings, and			
•	Mechanical lifting equipment	Back and other muscle strains slips /trips / falls	lifting equipment. Follow equipment maintenance requirements Maintain proper distance from			
•	Manual bandling		operating equipment. Training Use proper lifting techniques. Wear Safety shoes Keep walkways clear of material			
2. E.v.	;avatiens					
. =	Mechanical Drilling equipment	Persons struck by vehicles, equipment	Barricade work area. Notify Dig Safe File Dig Safe			
•	Vibratory Hammer Lifting	Mechanical equipment failures	number with the work plan.  Cattle guards in place when			
	Rebar lifting and placement	Energized overhead lines	necessary			
	Spoil piles and removal	Open hole hazards Excessive noise Cave-ins, entrapment	Open hole fall protection PPE, hearing protection when necessary			
•	Open holes	Confined space entry hazards Hazardous atmospheres Potential presence of soil	Follow equipment maintenance requirements Training			
		contaminants or other waste products	Follow Competent Person Requirements			
		Nature of ground, such as non-cohesive soil, rock, fractured rock, etc.	Limit approach of vehicles and equipment to open excavation, use barriers, wheel buffers			
		Rain Machinery moving near	Slope and bench if necessary Egress procedures			

<del></del>		-	
	AATE ALL COMMENTS	excavation Vibration from machinery in or near excavation Piles of excavated material beside excavation Struck by objects from above excavation Slips/trips/falls Presence of rail or other structures near excavation	Good housekeeping around excavation Place excavated materials, equipment and other materials away from excavation Remove persons from the excavation when mechanically lifting and placing loads in excavation Do not lift or suspend loads over person in excavation
3. Ins	tallation of Foundations		<del></del>
<b>1</b>	Foundation lay out Mechanical lifting equipment (refer also to section 1 above) Install forms Pour concrete foundation	Manual handling Cuts from skill saw Strikes from vehicles, equipment Concrete/chemical burns Manual handling Strike by vehicle Slips/trips/falls	Dig safe requirements Equipment guards Training PPE: Hard Hat, safety toe work shoes, safety glasses with side shields Barricade work area. Shore excavations where required. Refer to construction drawings and specifications
4. Den	nobilization / Material Hand	ling	
•	Police the work site and pick up trash and remove debris and / or excess material. Load/unload vehicles and equipment.	Contact with overhead lines/equipment  Lifting equipment failures	Off load vehicles clear of overhead lines, Maintain MAD to energized equipment. Use Safety Observer when
Ţ	Clean and store tools and equipment.	Persons struck by equipment, vehicles  Back and other muscle strains slips / trips / falls	needed, escort vehicles to/ from station Barricade work area. PPE: Hard Hat, safety toe work shoes,
•	Clean and inspect construction vehicles and equipment.  Transport vehicles and	Manual handling	safety glasses with side shields Inspect all lifting and rigging equipment before use.
:	equipment to storage area.		Use properly rated slings, and lifting equipment. Follow equipment maintenance requirements Maintain proper distance from operating equipment. Training Use proper lifting techniques. Wear Safety shoes Keep walkways clear of material and mitigate slippery surfaces.

# INCIDENT REPORTING AND ANALYSIS

If an injury or incident (equipment damage, outage, utility hit, property damage and/or near miss) occurs, it must be reported immediately to LG Constructors Site Superintendent which will then notify the safety department. No matter how minor the incident shall be reported. An LG Constructors incident form must be completed by all involved individuals. LG Constructors will immediately notify National Grid of any occurrences that Impact their project. After the investigation is completed an analysis with corrective measures (if applicable) will be reviewed by LG Constructors management.

Failure of employees to report incidents to their general foreman may result in disciplinary actions pursuant to LG Constructors Policy.

# JOB BRIEFINGS, SAFETY MEETINGS AND ORIENTATION

Each day, prior to the start of any work, a daily job briefing shall be conducted with all involved employees. The briefing shall be documented on the Daily Job Briefing form with will list the scope of work for the day, hazards and how each hazard will be controlled. If the tasks change within the day, another briefing shall be conducted. Any subcontractor shall conduct a daily job briefing as well. If multiple contactors are working in the same area then, a meeting shall be held with supervisors to discuss actions plans to communicate any and all hazards that may exist.

All Daily Job Briefings will be sent to LG Constructors' office at the end of the work week. Additionally, a Pre-Task Plan ( PTP) shall be completed each day before work starts.

At least once per week, a safety meeting shall be held to cover a safety topic that is pertinent to the job or may increase workers awareness to creating a stronger safety culture.

All employees working on site shall attend LG safety orientation as well as sub-contractor training.

Any visitors shall contact the job general foreman before entering the jobsite. They will need to sign the Daily Job Briefing after reviewing the hazards with the foreman.

# NATIONAL GRID SAFETY REQUIREMENTS

During the safety orientation, all employees working on the project shall watch National Grid's safety video about working near power lines. If there are any National Grid safety procedures that exceed LG Constructors' Safety Policy they will be reviewed with the crew. Any questions that employees have about National Grid safety procedures will be addressed before work commences.

See LG Constructors' Safety Policy that addresses all safety related issues.

# SAFETY COMPLIANCE

At the beginning of the job, all employees shall complete the safety orientations and follow all safety rules. Any additional employees that are hired after the project start will have to go through the orientation too.

Any employee that does not follow LG Constructors, National Grid or regulators safety policies/rules will be held accountable and subject to disciplinary action.

LG Constructors Safety Manager will complete site audits and address any safety issues immediately. Periodic safety audits will be conducted by the field supervisor, project manager and safety coordinator while visiting the jobsite. Copy of the audits will be provided to National Grid per request.

# **ENVIRONMENTAL COMPLIANCE**

LG Constructors incorporates environmental compliance into each and every job they perform. Such issues as storm water, surface water, wetland protection, air quality, hazardous materials and equipment leaks are monitored on a daily bases. See Environmental policy in attached file.

# CONSTRUCTION COMPANY REQUIREMENTS

In the job trailer will be a copy of LG Constructors' Safety Policy, FR Policy, Rubber Glove/Sieeve Policy, Incident Procedures, Equipment Inspection Forms, Environmental Awareness and Safety Incentive Program.

# COMMUNICATION

# **EMERGENCIES**

in the job trailer there will, be a copy of LG Construction's incident Procedures which will include emergency numbers with a map to the nearest medical facility. Before the start of each day, the crew leader will address emergency issues on the Daily Job Briefing.

# JOB HAZARD ANALYSIS & DAILY JOB BRIEFING

Each crew will conduct a Job Briefing each day before work begins and anytime the job task changes throughout the day. The purpose is to ensure that the hazards of the job are discussed and addressed before starting work every day. The form titled "Daily Job Briefing" located on the adjacent page will be completed to log each day's discussions. At the end of each week, the yellow copy will be returned to the office and routed as shown on the bottom.

A Job Briefing is intended to be a project specific discussion among all crew members. The Job Briefings contained herin are only recommendations, based upon past learning experiences. This is by no means an all inclusive list of hazards, nor is it a list of mandatory work instructions. This, the Job Breifings in this bookiet should not be relied upon to address every situation that may be encountered on any given job. This book will be updated periodically to reflect new information provided by completed Job Briefs.

# **DAILY JOB BRIEFING**

7	ate: Job No	Superintendent:
P	roject Manager:	Foreman:
1.		Customer:
1	YPE OF WORK TO PERFO	
	Distribution Transm	nission Underground Substation Other
<u> </u>		
	SOORE OF WORK.	
<u></u>		
If e	trespency paraprinel are called, our location	en today, la:
	The second secon	on today,la:
_	The second secon	the transfer of the second second
ar.	A STATE OF THE STA	The state of the s
A S		Job Task (Chack ALL that Apply)
	Job Assignmente	☐ Safe Working Tachniques ☐ Equipment/Vehicle Inspected & Tested & Crew Accountability
	Review Job Assignments on Site	☐ Lifting, Twisting, Bending, Stretching ☐ Proper PPE Worn
	Review Rules to Dig By	☐ Confirm Proper Excavation ☐ Check for Correct Phases
	Notified Digger's Hotline	Secure Loads
	Ticket/Locale # (if needed)	☐ Pot-Holling Required ☐ Yes ☐ N/A
· <u>-</u>		
	Sha Drangrathin Bailaus Corpolated	Job Site (Check ALL that Apply)
<b>D</b>	Site Preparation Review Completed	☐ Walk-Down Completed ☐ Discuss Emergency Escape P
	Site Preparation Review Completed Wildlife (insects, Dogs, Rodents, Snakes, etc.)	☐ Walk-Down Completed ☐ Discuss Emergency Escape P  Discuss Emergency Escape P  Environmental
_	Site Preparation Review Completed	<ul> <li>☐ Walk-Down Completed</li> <li>☐ Discuss Emergency Escape P</li> <li>☐ Identify Slip, Trip and Fall Hazards Uneven</li> <li>☐ Toxins: PCB's, SF6 Gas, Mercentage</li> </ul>
	Site Preparation Review Completed Wildlife (insects, Dogs, Rodents, Snakes, etc.)	<ul> <li>☐ Walk-Down Completed</li> <li>☐ Discuss Emergency Escape P</li> <li>☐ Terrain</li> <li>☐ Identify Slip, Trip and Fall Hazards Uneven</li> <li>☐ Toxins: PCB's, SF6 Gas, Mercentage</li> </ul>
	Site Preparation Review Completed Wildlife (insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Sptup	☐ Walk-Down Completed       ☐ Discuss Emergency Escape P         ☐ Terrain       ☐ Environmental         ☐ Identify Slip, Trip and Fall Hazards Uneven Surfaces Ics, Mud, Snow       ☐ Toxins: PCB's, SF6 Gas, Merc Lead, Asbestos, others         ☐ Trenching Barriers in Place       ☐ Spill Identified/Present         ☐ Vegetation (Poison Ivy/Oak, Hanging Limbs)       ☐ Leaking Equipment Identified
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Sptup Almbspheric Test Oone	Usak-Down Completed ☐ Discuss Emergency Escape P    Iemain
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Setup Almosphetic Test Done Confined Space Permit Required	☐ Walk-Down Completed       ☐ Discuss Emergency Escape P         ☐ Terrain       ☐ Environmental         ☐ Identify Slip, Trip and Fall Hazards Uneven Surfaces Ics, Mud, Snow       ☐ Toxins: PCB's, SF6 Gas, Merc Lead, Asbestos, others         ☐ Trenching Barriers in Place       ☐ Spill identified/Present         ☐ Vegetation (Poison Ivy/Osk, Hanging Limbs)       ☐ Leaking Equipment identified         ☐ Walkway Barriers Placed       ☐ Proper Pumping of Manhole         ☐ Waterway Affected
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Sptup Almbspheric Test Oone	Userway Affected  □ Discuss Emergency Escape P □ Discuss Emergency Escape
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Setup Almosphetic Test Done Confined Space Permit Required	Users Emergency Escape P    Discuss Emergency Escape P   Discuss Emergenc
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Setup Almosphetic Test Done Confined Space Permit Required	Userway Affected  □ Discuss Emergency Escape P □ Discuss Emergency Escape
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Setup Almosphetic Test Done Confined Space Permit Required	Users Emergency Escape P    Discuss Emergency Escape P   Discuss Emergenc
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Setup Atmospheric Test Done Confined Space Permit Required  [] Yes. [] N/A	Users Emergency Escape P    Discuss Emergency Escape P   Discuss Emergenc
	Site Preparation Review Completed Wildlife (Insects, Dogs, Rodents, Snakes, etc.) Climbing Hazards Identified Housekeeping/Self-Made Hazards Enclosed/Confined Space Splup Almosphetic Test Oone Confined Space Permit Required  [] Yes. [] N/A	Users Emergency Escape P    Discuss Emergency Escape P   Discuss Emergency   Discuss   Discuss Emergency   Discuss   Discuss Emergency   Discuss   Discuss Emergency   Discuss   Discuss Emergency   Discuss   Discuss   Discuss   Discuss   Discuss   Discuss   Discus

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# Exceptions (no gloves required)

No rubber gloves are required:

- When working in a properly established equipotential zone.
- When the operator remains at the same potential as the equipment by being off the ground and on the equipment.
- When a qualified worker performs transmission "hot stick" work on lines 69 kV or greater and no other energized wires are on the pole or structure below the worker.
- When work is performed on transmission structures carrying only energized conductors (115kV and above) and the Live Line Techniques are not being employed. While performing these activities, the worker shall utilize conductive clothing such as conductive gloves, conductive boots, leg straps and/or any other applicable conductive clothing.

# 4.4 Isolation of Energized Apparatus

Applies to: All contractors, as-needed.

1. Non-Reclosing Criteria and Live-Line Maintenance and Construction

The appropriate interrupting devices (breakers, reclosers, circuit switches, etc.) will be placed on NON-RECLOSING in accordance with National Grid tagging procedures.

2. Tagging Out Lines or Apparatus

The Field Construction Coordinator (FCC) or other designated representative shall coordinate all switching and tagging in accordance with the most current EOP on Clearance and Control.

Grounding

When National Grid switches out lines or apparatus, any grounds that may be installed shall only be considered a visual reference, and shall not be considered a means to protect the Contractor's employees. The Contractor is responsible to install their personal grounds, in addition to National Grid's. National Grid will provide guidance on the minimum size of the grounds to be used based on circuit available fault current.

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# 4. Minimum Approach Distance

Follow minimum approach distance (MAD) tables: clearance OSHA tables unqualified distances are 10 feet and up depending on voltage. See section 4.7

# 4.5 Appointment of a Safety Observer

Applies to: All contractors, as-needed.

- 1. If work is being performed where there is a potential for persons or equipment to come in contact with energized equipment, a Safety Observer will be appointed by the contractor to aid in protecting employees and others from hazards. The Safety Observer will be a "Qualified Electrical Worker" with the training and experience specified in OSHA regulations, specifically the "Electric Power Generation, Transmission and Distribution Standard" 29 CFR 1910.269.
- The Safety Observer will be appointed while positioning trucks, cranes or other equipment and where precise placement is required to avoid contact with or damage to existing equipment or circuits; while moving loads overhead that may come within OSHA clearance requirements; or at other times where assistance is needed to help direct specific tasks for the protection of personnel or property.

# 4.6 Work Zone Traffic Control

- If work activity is on or near a road, the contractor and their subcontractors will comply with all applicable parts of the most current US Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD).
- 2. If working in areas covered by state permits issued to National Grid, contractors are required to comply with the provisions (work practices and notifications) of the permit language.

# 4.7 Qualified Electrical Workers

Applies to: Electrical Projects/Activities.

 National Grid expects that electrical contractor employees will already be electrically-qualified as required by OSHA in 29 CFR 1910.269.

# **LG Constructors**

75 Riverside Avenue Rensselaer, NY 12144 (518) 472-8705 - Fax (518) 472-8706

October 3, 2008

National Grid 1125 Broadway Albany, NY 12204

Attn: Paul Marschall

#### LETTER OF ASSURANCE

LG Constructors, the prime contractor, has been informed of National Grid's Safety Requirements. LG Constructors also certifies that all Employees & Subcontractors have the necessary qualifications to perform the required work for the project.

Sincerely,

Russel Keson

Site Construction Manager



# SAFETY, HEALTH AND ENVIRONMENTAL PLAN

Developed for:

LG CONSTRUCTORS





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## SECTION | PROJECT BACKGROUND

#### SCOPE OF WORK:

Install 4.6 miles of 16" gas pipeline into the Empire Generation Plant and build 8 miles of 345kV transmission line with drilled foundations running parallel with existing 115 kV. Work is located near Albany, NY.

## SECTION II PROJECT PERSONNEL

#### ROLES AND RESPONSIBILITIES:

Michels Corporation is a subcontractor to LG Constructors. Michels will be responsible for the safety of its employees and the employees of our subcontractors. Michels will ensure that all employees on site will have the skills and qualifications necessary to perform their job safely and effectively and in accordance with LG Constructors and all regulatory requirements. Key project personal are listed below:

#### General Foreman - Steve Goodlin (lineman) and Dan Sawyer ( Gas) - Competent Person

- Be in charge of the day-to-day details of this project-specific safety plan;
- · In charge of safety on site;
- Ensure that work is performed in accordance with the company work procedures, the owner requirements and the Safety, Health and Environmental Plan;
- Complete and lead safety meeting each morning and have everyone signoff on the Daily Job Briefing and Pre-Task Plan (PTP);
- Walk the job site each day to ensure a safe environment;
- Where hazards are observed, take prompt corrective action;
- Have the authority to order a work stoppage in the event of a serious safety issue...

The Competent Person shall be the Project Manager, foreman, or any other employee designated by the Project Manager. The Competent Person is defined by OSHA as an individual who can identify hazards and has the authority to take prompt corrective action. Competent Person supervision is necessary for activities such as fall protection, excavation, confined space, lockout procedures, live conductor/circuit work, and welding/hot work.

#### Field Supervisor - Bruno Poirier (lineman) and Buck Newholm (Gas) - Competent Person

- Be in charge of making sure General Foreman is completing safety requirements and job is performing to the standards set by Michels, LG Constructors, National Grid and regulators.
- Ensure that work is performed in accordance with the Michels' work procedures, regulators, LG Constructors, the owner requirements and the Safety, Health and Environmental Plan;
- Where hazards are observed, take prompt corrective action;
- Have the authority to order a work stoppage in the event of a serious safety issue.

No job is worth doing if we cannot take the time to do it safely!

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### Michels Project Manager - Brian Olsen - Competent Person

- Ensure that work is performed in accordance with the Michels' work procedures, regulators, LG Constructors, the owner requirements and the Safety, Health and Environmental Plan;
- Where hazards are observed, take prompt corrective action;
- Have the authority to order a work stoppage in the event of a serious safety issue.

#### Michels Safety Managers - Fred Rose and Patrick Pakulski - Competent Person

- Ensure that work is performed in accordance with the Michels' work procedures, LG Constructors, regulators, the owner requirements and the Safety, Health and Environmental Plan;
- Where hazards are observed, take prompt corrective action;
- · Audits safe work practices;
- · Have the authority to order a work stoppage in the event of a serious safety issue.

#### **Employees and Sub-Contractors:**

- Michels' employees and all sub-contractor employees are responsible for following all safety requirements outlined in this plan.
- There shall be at least two employees trained in CPR and First Aid on-site during working hours. [Note: This is an OSHA requirement for working around voltages above 600 volts as specified in 29 CFR 1910.269.]
- Each employee and sub-contractor is responsible for reporting to supervision any incidents including near-miss incidents.
- Each employee and sub-contractor has the authority to refuse to work or to request that others stop work if that employee believes the conditions to be unsafe.

#### QUALIFICATIONS

Michels Power's personnel are all from the union trades and qualified to work near energized lines or equipment. Michels Pipeline personnel are also from the union trades and must be qualified to perform their tasks. The subcontractors that are not qualified will be given a short orientation to go over what is energized or under pressure and will be watched by a qualified electrician/pipe liner while performing their work. The general foramens will be the competent person on the job which will include the excavations for the trenching and other items needing excavation.

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# SECTION III HAZARD IDENTIFICATION AND RISK ASSESSMENT

## **HAZARD / RISK ASSESSMENT**

Prepared by: Fred Rose			Date: August 26, 2008
Location: Albai	ny NY area		
:	Hazard Identification a	nd Risk A	ssessment Worksheet
This table pres Hazard Analysi	ented the initial evaluation of the over is binder for more specific information	all hazard regarding	s of the construction job. Please refer to the Job the hazards and control measures of the project.
Activity:	Install 4.6 miles of 16" Gas pipe and build 8 miles of 345 kV Transmission line	Overall Risk:	Low Medium <u>High</u>
Major Tasks	Hazard		Controls/Mitigation Steps: Engineering; Administrative; PPE
Gas and Electrical Transmission Construction	Construction activities adjacent to energized transmission lines; traffic; cross and work adjacent to railroads; tie into gas line; hoisting and rigging issues; excavation issues.		<ul> <li>Conduct a daily job briefing and confirm everyone is aware of the risks and what their tasks are;</li> <li>Maintain MAD to energized equipment.</li> <li>Use Safety Observer when needed</li> <li>Barricade work area;</li> <li>Use proper slings, and rated lifting equipment;</li> <li>Shore- up excavation when required.</li> <li>Pre-inspection of all equipment/tools before use;</li> <li>Maintain 100% tie off for heights greater than 6' and conduct inspections of fall protection devices before use.</li> </ul>

# SECTION IV COMMUNICATION

### **EMERGENCIES**

In the job trailer there will be a copy of Michels' thicident Procedures which will include emergency numbers with a map to the nearest medical facility. Before the start of each day, the crew leader will address emergency issues on the Daily Job Briefing.

A copy of Michels' Incident Procedures is included in the attached Safety Policy file.

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#### INCIDENT REPORTING AND ANALYSIS

If an injury or incident (equipment damage, outage, utility hit, property damage and/or near miss) occurs, it must be reported immediately to Michels' general foreman which will then notify the safety department. No matter how minor the incident shall be reported. A Michels' incident form must be completed by all involved individuals. Michels will immediately notify LG Constructors of any occurrences that impact their project. After the investigation is completed an analysis with corrective measures (if applicable) will be reviewed by Michels' management.

Failure of employees to report incidents to their general foreman may result in disciplinary actions pursuant to Michels' Policy.

#### JOB BRIEFINGS, SAFETY MEETINGS AND ORIENTATION

Each day, prior to the start of any work, a daily job briefing shall be conducted with all involved employees. The briefing shall be documented on the Daily Job Briefing form with will list the scope of work for the day, hazards and how each hazard will be controlled. If the tasks change within the day, another briefing shall be conducted. Any subcontractor shall conduct a daily job briefing as well. If multiple contactors are working in the same area then, a meeting shall be held with supervisors to discuss actions plans to communicate any and all hazards that may exist.

All Daily Job Briefings will be sent to Michels' office at the end of the work week. Additionally, a Pre-Task Plan ( PTP) shall be completed each day before work starts and provided to LG Constructors.

At least once per week, a safety meeting shall be held to cover a safety topic that is pertinent to the job or may increase workers awareness to creating a stronger safety culture.

All employees working on site shall attend LG safety orientation as well as Michels training.

Any visitors shall contact the job general foreman before entering the jobsite. They will need to sign the Daily Job Briefing after reviewing the hazards with the foreman.

## SECTION V NATIONAL GRID SAFETY REQUIREMENTS

During the safety orientation, all employees working on the project shall watch National Grid's safety video about working near power lines. If there are any National Grid safety procedures that exceed Michels' Safety Policy they will be reviewed with the crew. Any questions that employees have about National Grid safety procedures will be addressed before work commences.

See Michels Safety Policy that addresses all safety related issues.

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## SECTION VI SAFETY COMPLIANCE

At the beginning of the job, all employees shall complete the safety orientations and follow all safety rules. Any additional employees that are hired after the project start will have to go through the orientation too.

Any employee that does not follow LG Constructors, Michels, National Grid or regulators safety policies/rules will be held accountable and subject to disciplinary action.

Michels' general foreman will complete site audits and address any safety issues immediately. Periodic safety audits will be conducted by the field supervisor, project manager and safety coordinator while visiting the jobsite. Copy of the audits will be provided to LG Constructors and National Grid per request.

# SECTION VII ENVIRONMENTAL COMPLIANCE

Michels incorporates environmental compliance into each and every job they perform. Such issues as storm water, surface water, wetland protection, air quality, hazardous materials and equipment leaks are monitored on a daily bases. See Environmental policy in attached file.

# SECTION VIII CONSTRUCTION COMPANY REQUIREMENTS

In the job trailer will be a copy of Michels Safety Policy, FR Policy, Rubber Glove/Sleeve Policy, Incident Procedures, Equipment Inspection Forms, Environmental Awareness and Safety Incentive Program (power div.).





## Appendix A – Emergency Contact Information

# SAFETY, HEALTH and ENVIRONMENTAL PLAN EMERGENCY CONTACT INFORMATION

Job Number: Pipe - 81079 Power - 89124	Yard Location: 25 Corellis Dr E. Greenbush, NY				
Circuit Number: TBD	Project Manager: Brian Olsen 920-539-7053				
Description of Work: Gas and Electrical Transmission with drilled foundations					
EMERGENCY CO	ONTACT INFORMATION				
CONTACT NAME	TELEPHONE NUMBER				
Local Emergency Medical Services: Police Emergency Fire Emergency	911				
Local Police Non-Emergency Number	518-479-2525				
Local Fire Dept. Non-Emergency Number	518-479-1212				
Nearest Hospital Name: Albany Memorial Hosp. Location: 600 Northern Blvd Directions: Refer to Attached Map	(518) 471 - 3221				
Michels Safety Representative Name: Fred Rose and Pat Pakulski	920-428-0349-Fred 920-948-7647-Pat				
LG Constructors Safety Contacts Jim Petriella and Paul Conner	518-256-4055-Jim 281-678-5708-Paul				
Michels Environmental Representative Name: David Mellum and Jerome Troise	920-737-2648-Dave 302-233-8906-Jeremy				
National Grid Safety Contact Person Name: Steve Wehner	585-935-1275				
Michels Field Managers Name: Bruno Poirier and Buck Newholm	920-851-3993 Bruno 920-539-3858- Buck				
Michels General Foreman Name: Steve Goodlin and Dan Sawyer	920-579-2945-Steve 920-366-2716-Dan				
Michels Office	920-720-5200				

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## Appendix B - Michels Power Requirements

See attached file which includes: Michels Safety Policy, FR Policy, Rubber Glove/Sleeve Policy, Incident Procedures, Equipment Inspection Forms, Environmental Awareness and Safety Incentive Program.

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## **DAILY JOB BRIEFING**

	J Superntendent: _			
	Foreman:			
Weather Conditions:	Customer:			
TYPE OF WORK TO PERFORM:				
	nission Underground Sul	ostation Other		
	Out	Delei		
3001 E 01 WORK	· · · · · · · · · · · · · · · · · · ·			
<del></del>				
	<del></del>	·		
ilf emergency personnel are called; our la	Scotton for the control of the contr	and the Contraction		
	ocation records			
	Job Task (Check ALL That Apply)			
☐ Job Assignments	☐ Safe Working Techniques	☐ Equipment/Vehicle Inspected & Test		
☐ Review Job Assignments on Sile	& Crew Accountability	☐ Proper PPE Worn		
☐ Review Rules to Dīg By	<ul> <li>Lifting, Twisting, Bending, Stretching</li> </ul>	☐ Check for Correct Voltage & Phasing		
□ Natified Digger's Hotline	☐ Confirm Proper Exavation	☐ Struck By/Caught Between Hazards		
Ticket/Locale Number(s):	☐ Secure Loads	Identified		
	□ Pot-Holing Required			
	Job Site (Check All That Apply)			
☐ Sile Preparation Review Completed		□ Discuss Emergency Escape Plan		
•	☐ Walk-Down Completed  Terrain	☐ Discuss Emergency Escape Plan		
→ Wildlife (Insects, Dogs, Rodents, Snakes, etc.)	☐ Walk-Down Completed  Terrain ☐ Identify Stip, Trip & Fall Hazards Uneven	Environmental  Toxins: PCBs, SF6 Gas, Mercury, Le.		
] Wildlife (Insects, Dogs, Rodents, Snakes, etc.) ] Climbing Hazards Identified	☐ Walk-Down Completed  Terrain ☐ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow	Environmental		
] Wildlife (Insects, Dogs, Rodents, Snakes, etc.) ] Climbing Hazards Identified ] Housekeeping/Self-Made Hazards	☐ Walk-Down Completed  Terrain ☐ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow ☐ Pole/Trenching Barriers in Place	Environmental  Toxins: PCBs, SF6 Gas, Mercury, Le. Asbestos, others  Spill Identified/Present		
] Wildlife (Insects, Dogs, Rodents, Snakes, etc.) ] Climbing Hazards Identified ] Housekeeping/Self-Made Hazards ] Enclosed/Confined Space Setup	□ Walk-Down Completed  Terrain □ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow □ Pole/Trenching Barriers in Place □ Vegetation (Poison Ivy/Oak, Hanging Limbs)	Environmental  Toxins: PCBs, SF6 Gas, Mercury, Le. Asbestos, others  Spill Identified/Present  Leaking Equipment Identified		
] Wildlife (Insects, Dogs, Rodents, Snakes, etc.) ] Climbing Hazards Identified ] Housekeeping/Self-Made Hazards ] Enclosed/Confined Space Setup ] Atmospheric Test Required □Yes □N/A	☐ Walk-Down Completed  Terrain ☐ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow ☐ Pole/Trenching Barriers in Place	Environmental  Toxins: PCBs, SF6 Gas, Mercury, Le Asbestos, others  Spill Identified/Present  Leaking Equipment Identified  Proper Pumping of Manhole		
☐ Wildlife (Insects, Dogs, Rodents, Snakes, etc.) ☐ Climbing Hazards Identified ☐ Housekeeping/Self-Made Hazards ☐ Enclosed/Confined Space Setup ☐ Atmospheric Test Required ☐ Yes ☐ N/A ☐ Confined Space Permit Required	□ Walk-Down Completed  Terrain □ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow □ Pole/Trenching Barriers in Place □ Vegetation (Poison Ivy/Oak, Hanging Limbs)	Environmental  Toxins: PCBs, SF6 Gas, Mercury, Le. Asbestos, others  Spill Identified/Present  Leaking Equipment Identified  Proper Pumping of Manhole  Wetlands/Waterway Affected		
] Wildlife (Insects, Dogs, Rodents, Snakes, etc.) ] Climbing Hazards Identified ] Housekeeping/Self-Made Hazards ] Enclosed/Confined Space Setup ] Atmospheric Test Required □Yes □N/A	□ Walk-Down Completed  Terrain □ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow □ Pole/Trenching Barriers in Place □ Vegetation (Poison Ivy/Oak, Hanging Limbs)	Environmental  Toxins: PCBs, SF6 Gas, Mercury, Le. Asbestos, others  Spill Identified/Present  Leaking Equipment Identified  Proper Pumping of Manhole  Wellands/Waterway Affected  Spill Kits Available		
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□ Wildlife (Insects, Dogs, Rodents, Snakes, etc.) □ Climbing Hazards Identified □ Housekeeping/Self-Made Hazards □ Enclosed/Confined Space Setup □ Atmospheric Test Required □ Yes □ N/A □ Confined Space Permit Required □ Yes □ N/A	□ Walk-Down Completed  Terrain □ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow □ Pole/Trenching Barriers in Place □ Vegetation (Poison Ivy/Oak, Hanging Limbs) □ Walkway Barriers Placed  TK Zone Protection (Check ALL That Apply)	Environmental Toxins: PCBs, SF6 Gas, Mercury, Les Asbestos, others Spill Identified/Present Leaking Equipment Identified Proper Pumping of Manhole Wetlands/Waterway Affected Spill Kits Available Erosion Control Required Other		
☐ Wildlife (Insects, Dogs, Rodents, Snakes, etc.) ☐ Climbing Hazards Identified ☐ Housekeeping/Self-Made Hazards ☐ Enclosed/Confined Space Setup ☐ Almospheric Test Required ☐ Yes ☐ N/A ☐ Confined Space Permit Required ☐ Yes ☐ N/A	□ Walk-Down Completed  Terrain □ Identify Stip, Trip & Falt Hazards Uneven Surfaces, Ice, Mud, Snow □ Pole/Trenching Barriers in Place □ Vegetation (Poison Ivy/Oak, Hanging Limbs) □ Walkway Barriers Placed  □ K Zone Protection (Check ALL That Apply) □ Signs Placed □ Street Permits in Place/Reviewed	Environmental Toxins: PCBs, SF6 Gas, Mercury, Les Asbestos, others Spill Identified/Present Leaking Equipment Identified Proper Pumping of Manhole Wellands/Waterway Affected Spill Kits Available Erosion Control Required		

\*COMPLETE BOTH SIDES and return form to the office at the end of the work week\*

# **Empire Generation Project Segment 1**

Pre-Construction Meeting August 4, 2008

Attendees: See attached list.

Location: 75 Riverside Ave, Rensselaer, NY

These minutes document the pre-construction meeting conducted for the clearing and grubbing construction activities associated with the Article VII facility on the BASF property in Segment 1 and craft parking area. The PSC approved the EM&CP for Segment 1 at its June 18 meeting. Key points made during this meeting are noted below.

- Meeting opened with a safety message from LGC Safety Rep Jim Petriella on the conditions left by the heavy rain falls in the previous month creating muddy condition and slips/trips and falls hazards.
- Current parking and trailer city area will be moving to the site recently cleared in the next few weeks. Once the craft property is cleared it will serve as a lay down area.
- 3. Notification to local officials, emergency personnel, and the public was issued by National Grid June 23, 2008 for Segment 1.
- 4. SWPPP NOI for Segment 1 only is being worked on by LGC and NG will sign prior to submittal.
- 5. If there is any excavation work required, Dig Safe NY is required to be called in advance. LGC will clearly identify overhead hazards and guy wires. Gary DeStefanis mentioned to use caution of the buried counterpoise system on the 115kv circuit ROW; it cannot be located effectively so contractor must be made aware of the potential hazard.
- 6. Edge of ROW and Wetland boundaries will be marked out and flagged prior to clearing activities.
- 7. The DPS change process was reviewed. If there is a change or conflict with the EM&CP, the contractor will contact LGC and request a meeting with NG and DPS. NG Paul Marschall will submit any change requests to DPS.
- 8. The Article VII condition #34 was read to all present.
- 9. LGC Safety Rep has prepared a Site Specific Safety Plan & emergency contact sheet and will provide to NG CM Paul Marschall. This Site Safety Plan will be revised as the phases of the project scope changes. Incident Analysis Reporting will be reviewed with LGC. National Grid must be notified of all significant incidents, accidents or Near Misses.
- 10. The craft parking area falls under LGC's Article X and it does not require a two week notification prior to start of construction. LGC and NG will have a site visit prior to clearing activities to address NG safety concerns with existing transmission facilities.

- 11. LGC utilizes two spill contractors, OpTech and Clean Harbors. Both are acceptable to NG.
- 12. Currently the clearing contractor will have working hours (6-10 hour days) LGC may file a minor change to address any changes in work hours beyond 7am-7pm M-Sat once the line construction work begins on Segment 1.
- 13. Agricultural Conditions 64-76 were addressed and reviewed with the attendees and AGs & Mkts Resource Spec Matt Brower. Per Mr. Brower, this meeting will serve as the 10 day notification per condition 64.
- 14. Mr. Brower stated all poles to be removed must be removed a minimum of 4 feet below surface.
- 15. LGC will copy NG and use the NG Record of Owner Notification form to meet Condition 76 Notification of Farm Owner/Operators. The number to facilitate direct contact will be 518-433-3003.
- CSX Notification must be completed by LGC 30 days prior to work. Request for Flagger form.
- 17. Access Rds for pole 17 & 18 on EM&CP drawing sheet 8 were reviewed and no crossing of CSX facility is permitted by construction vehicles.
- 18. Work on the craft lay down area may begin after LGC and NG meet on site to address safety concerns and methods with clearing contractor.
- 19. Work on the Segment 1 may not begin until:
  - a. Aug 18 due to the EM&CP Notification process and
  - b. 5 business days after the NOI has been received by the DEC.

Action Items include LGC to forward communications of this meeting to clearing contractor and to have a pre-consruction briefing with the clearing/grubbing subcontractor when identified and on site safety meeting at craft lay down area.

Meeting notes prepared by Paul Marschall

Attachments:
List of Attendees
National Grid form – Record of Owner/ Occupant Notification
CSXT form – Outside Party Number Request

## Empire Generation Project Segments 2, 2A, 2A Connector & 3

Pre-Construction Meeting October 21, 2008

Attendees: See attached list.

Location: 1125 Broadway Albany, NY

These minutes document the pre-construction meeting conducted for the construction activities associated with the Article VII Certificate of Environmental Compatibility & Public Need and Environmental Management & Construction Plan (EM&CP) for the Reynolds Rd-Empire Generation #5 – 345kv Electric Transmission Line located within Segments 2, 2A, 2A Connector & 3. The PSC approved the EM&CP for Segments 2, 2A, 2A Connector and 3 on September 26, 2008.

## Key points made during this meeting are noted below.

- 1. Meeting opened with a safety message from National Grid's Construction Manager Paul Marschall on the possible Black Ice conditions we will be encountering in the coming months with the on set of cold weather. Emergency exits and restrooms were also pointed out the attendees.
- 2. Notification to local officials, emergency personnel, and the public was issued by National Grid October 17, 2008 for Segments 2+.
- 3. LG Constructors has coordinated work with DOT per condition 6A.
- 4. LG Constructors will coordinate any work to be performed in the city, town, or county highways with the local highway departments. This is per Article VII condition 6B.
- 5. All work will be performed in accordance with the EM&CP plans. Any changes, such as access road changes, need to be identified and approved prior to implementation.
- 6. LG Constructors has CT Male in the field surveying and staking the ROW and wetland areas. Edge of ROW and Wetland boundaries will be marked out and flagged prior to clearing activities on Segment 2+.
- 7. National Grid submitted the DEC NOI for Segment 2+ on October 14. LG Constructors will be notified when the NOI has been approved.
- 8. LG Constructors is aware of and has been getting the proper dig safe tickets and marked out locations with Dig Safe NY.
- 9. Conditions of the Approved EM&CP were mentioned, specifically restricted (archaeologically sensitive) area around structures 58 & 59 and the End of Field Letter that must be submitted prior to performing any work in this area.
- 10. Work hours were discussed General Environmental Requirements #10 Mon-Sat 7am-7pm unless within 200ft of residence it will be 7am -6pm.
- 11. Outage Plan National Grid has submitted outages on the #4, #9 & 17 lines.
- 12. Access roads and parking areas were discussed. LGC Greg Miller had a concern about the pole barricades that are called out for and the possible danger to hunters

- or ATV traffic. Recommendation to use reflectors and make the barricades visible after hours of daylight.
- 13. Spill notification process has been revised. All contractors & subcontractors will notify NG Environmental Inspector who will make the DEC phone call and he will also monitor clean up. LGC utilizes two spill contractors, OpTech and Clean Harbors. Both are acceptable to NG
- 14. The DPS change process was reviewed. If there is a change or conflict with the EM&CP, the contractor will contact LGC and request a meeting with NG and DPS. NG Paul Marschall will submit any change requests to DPS.
- 15. The Article VII condition #34 was discussed and that LGC needs to make all Subs aware of this condition.
- 16. LGC Safety Rep has prepared a Site Specific Safety Plan & emergency contact sheet. This plan has been approved by NG Transmission Safety and provided to NG CM Paul Marschall. Incident Analysis Reporting will be reviewed with LGC. National Grid must be notified of all significant incidents, accidents or Near Misses.
- 17. Issues/ Sensitive areas were discussed including Worthman Lane, Stock Lane, and Laura Lane. These areas are within 200' of residences and contractors working in these areas must be clean, respectful and repair roads and any property damaged during construction. LGC Paul Conner brought up another sensitive area on Valley View Blvd.
- 18. Co-Locations with Dominion require a 72 hour advance notification when excavations or access are within proximity to gas main. Attendees were instructed to review the appropriate notes on the drawings in the EM&CP. Dominion brought up concern on Sheet 19 access road crossing the Dominion line. The plans will be modified to address the concern.
- 19. I-90 Crossing & Access NYSDOT Jan Peterson stated the crossing permit has been denied due to safety issues with the Temporary rider poles. These are looked at as permanent structures by NYSDOT a major safety concern. A meeting will be set up to address the method that will be used to cross the interstate. Several Hwy permits have been approved. Contractor will need to hire Troopers independently of DOT for road closures when crossing the interstate.
- 20. Town of East Greenbush Peter Partak made aware of the sewer line behind Old Albany International. This line will utilize swamp mats when crossing it.
- 21. Work on Segments 2, 2A, and 3 may not begin until notified by National Grid.

## Action Items include:

- Review proposed changes for access road on sheet 19 and submit change request to DPS for approval.
- Revise plans for construction method on the I-90 Crossing. Gain approval from DOT for those approvals.

Meeting notes prepared by Paul Marschall Attachments: List of Attendees

## Niagara Mohawk Power Corporation - d/b/a National Grid ENVIRONMENTAL MANAGEMENT & CONSTRUCTION PLAN NOTICE OF MINOR CHANGE

	Notice No.	
•	024	

PROJECT: Reynolds Rd-Empire #5 Transmission Line PSC Case No. <u>03-T-0644</u> USACE Pmt. No. 2005-00453

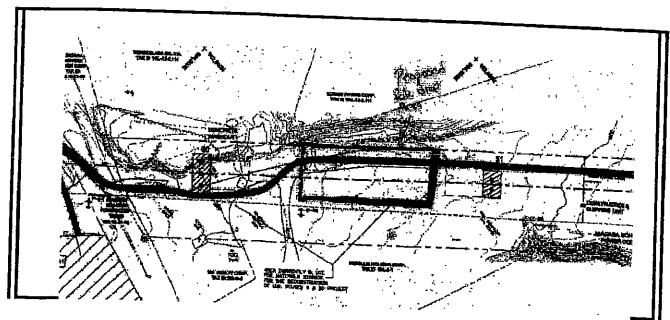
Refer to Dwg #:\_\_EMCP E-35470-E , Sheet #: 11 Location: Segment 2 - between Structures 31 & 30

Feature Changed:

Request to use the ROW just west of STR 31, (behind Corellis' shop) to use as a Pole storage area as the truck shipments come in. This area is not underneath the existing 115kv LN 17. It will only be on the new Empire Gen #5 line ROW. Michel's intention with this small lay down area is to organize the poles as the trucks come in. As the loads of trucks would come in, and when we have enough pieces to assemble an entire structure, we would then haul the poles to their final location on the ROW.

Attached is a sketch outlining the proposed area.

## Field Sketch:



Initiated By: Brian Olson  NGC Approval By: PMarschall  Sent To PSC By: PMarschall	Date: 28 Jan 2009 Date: 28 Jan 2009
PSC Approval By: D Morrell Sent To Corps By: Corps Approval By: BGCo Approval By: Drawing Updated By:	Date: 28 Jan 2009 Verbal (Y)  Date: Date: Verbal (Y) or (N)  Date: Date: Date: Verbal (Y) or (N)

Pole drop area near STR 31.txt

From: Brian Olsen [bolsen@michels.us] Sent: Wednesday, January 28, 2009 3:33 PM

To: Marschall, Paul E.

Cc: Bruno Poirier; Greg.Miller2@ch2m.com; Pat Daley

Subject: Pole drop area near STR 31

Attachments: Pole drop area.pdf

Paul,

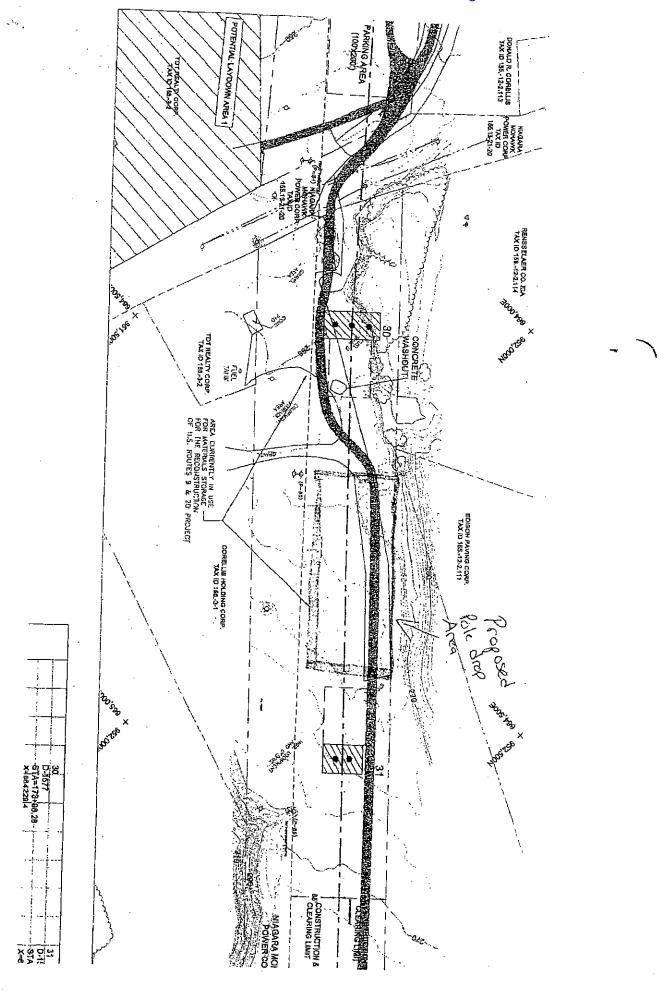
As i believe was brought up at the 1pm meeting at your trailer at reynolds road sub, was the idea that Michels would like to use the ROW just west of STR 31, (behind Corellis' shop) to use as a Pole storage area as the truck shipments come in. This area is not underneath the existing high line, is only on the new Empire Gen #5 line ROW. Michels intention with this small laydown are is to organize the poles as the trucks come in (as complete structures do not come on a single truck nor in a consistent consecutive order). As the loads of trucks would come in, and when we have enough pieces to assemble an entire structure, we would then haul the poles to their final location on the ROW. (Saves us having to constantly move our crane back and forth from STR to STR to unload a single truck) This will also help keep truck traffic down on city streets, county roads, as well as on the access roads themselves. Michels would like to utilize this area soon as the pole shipments will be coming in shortly. We look forward to hearing back from you.

Attached is a sketch outlining the proposed area.

Thanks!!

Brian

Brian Olsen Michels Power Cell #(920) 539-7053 Email- bolsen@michels.us



# Casa gapacy Olfaw R Power Corporation - d/b/a National Grid ENVIRONMENTAL MANAGEMENT & CONSTRUCTION PLAN NOTICE OF MINOR CHANGE

,		Notice No025
PROJECT: Reynolds Rd-Empire #5 Transmission Line	ngo o	
Refer to Dwg #: EMCP E-35470 F	USACE Pmt. No.	03-T-0644 2005-00453
Feature Changed:		
Request to use the ROW around STR 34, (Stock Lane) the truck shipments come in for the 2A connector. The existing 115kv LN 17. It will only be on the new Enderstand in the state of the small lay down area is to organ in and then haul the poles to their final location. Attached is a sketch outlining the proposed area.	Mpire Gen #5 line por	erneath the
Field Sketch:		
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PAGE RELIEF TO		`
Initiated By: Greg Miller  NGC Approval By: PMarschall	Date: 29 Jan 2009	
Sent To PSC By: PMarschall	Date: 30 Jan 2009	-
Sent To Corps By:	Date: 30 Jan 2009 Date:	Verbal (Y) or (N)
Corps Approval By: EGCo Approval By:	Date	
EGCo Approval By: Drawing Updated By:	Date:	Verbal (Y) or (N)
	Dotos	<del></del>

Date:



## Niagara Mohawk Power Corporation - d/b/a National Grid ENVIRONMENTAL MANAGEMENT & CONSTRUCTION PLAN NOTICE OF MINOR CHANGE

	τ	Notice No.
PROJECT: Reynolds Rd-Empire #5 Transmission Line	PSC Case No.	
Refer to Dwg #:E-35470-E, Sheet #: 10	USACE Pmt. No. 20	<u>03-1-0644</u> <u>105-00453</u>
Location: Near structure 29 - Corellis Yard -		
Feature Changed: Temp Storage area for Rebar & Steel Casings		
Field Sketch: see attached drawing		
CONTROL ACCORD  THE CONTRO		

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Initiated By: G. Miller NGC Approval By: PMarschall	Date: 17 April 2009
Sent To PSC By: PMarschall PSC Approval By:	Date: 20 April 2009  Date: 20 April 2009

Date: 20 April 2009

Date:

Date:

Date: Date:

Date: \_\_\_\_\_

Verbal (Y) or (N)

Verbal (Y) or (N)



Sent To Corps By:

Corps Approval By: EGCo Approval By:

Drawing Updated By:

PSC Approval By:

## Glasheen, Kevin P.

From:

Greg.Miller2@ch2m.com

Sent:

Friday, April 17, 2009 8:35 AM

To: Cc: Paul.Marschall@us.ngrid.com; William Buetow; Richard.Allen@us.ngrid.com

Peter.Leighton@gdfsuezna.com; John Wanalista@ch2m.com; Russel.Keson@CH2M.com; Maurice.Meagher@ch2m.com; Thomas.Riney@ch2m.com; Paul.Conner@ch2m.com

Subject:

FW: Tied Rebar and Casing storage area

Attachments:

Rebar and Casing storage area.pdf



Rebar and Casing storage area....

Good Morning Paul,

Please submit this to DPS as a Minor Change.

Thank You,

Gregory J. Miller Offsite Electrical Superintendant

LG Constructors **Empire Generating Project** 75 Riverside Ave. Rensselaer, NY 12144

Project: 518-472-8705 Fax: 518-472-8706 Cell: 239-595-8168

----Original Message----

From: Brian Olsen [mailto:bolsen@michels.us]

Sent: Friday, April 17, 2009 7:58 AM

To: Miller, Greg/RNY

Cc: Phil Litscher; Bruno Poirier

Subject: Tied Rebar and Casing storage area

Greg,

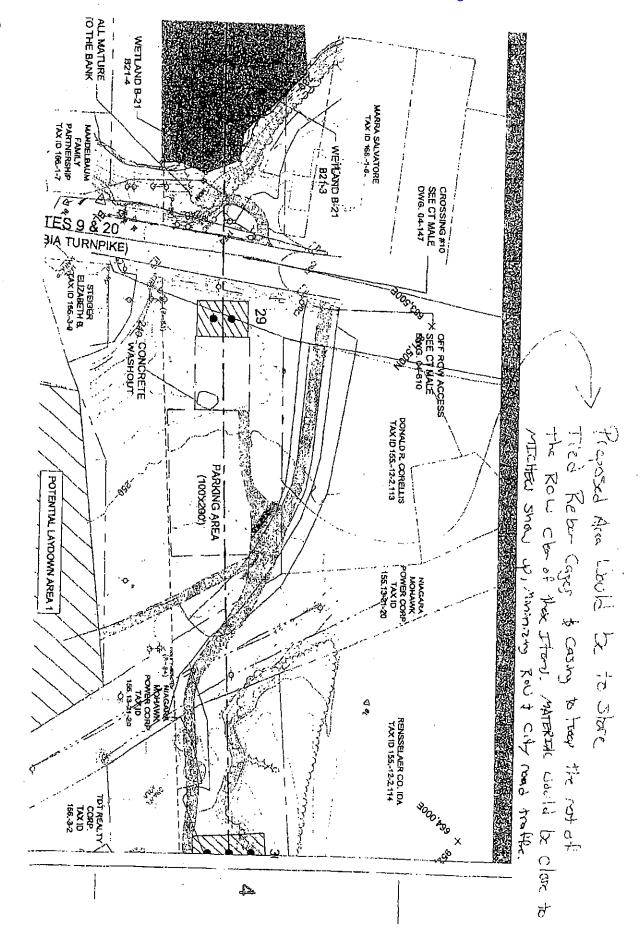
Attached is a sketch outlining the area on the ROW that Michels would like to utilize as an area to store pre-tied rebar and excess casing. By utilizing the area for this, it will help keep the rest of the ROW less congested and free of unneccessary rebar cages and casing. Will also help keep traffic down on the ROW. Please forward to the appropriate parties for approval.

Thank you,

Brian Olsen Michels Power

## Case 5:09-cv-01308-DEP Document 91 Filed 01/13/12 Page 58 of 94

Cell #(920) 539-7053 Email- bolsen@michels.us



1 Expert Testimony of MORRIS JOHN MACH, CSP 2 UNITED STATES DISTRICT COURT 3 NORTHERN DISTRICT OF NEW YORK 4 JAMES A. BRUNO and KATHLEEN M. BRUNO, 5 Plaintiffs, 6 5:09-CV-01308 7 -vs-NIAGARA MOHAWK POWER CORPORATION, 8 LG CONSTRUCTORS, INC., and TDT REALTY CORP., CORELLIS HOLDING CORP., 9 and THOMAS A. CORELLIS, 10 Defendants. . \_ \_ \_ **\_ \_** \_ \_ \_ \_ \_ \_ X 11 LG CONSTRUCTORS, INC., 12 Third-Party Plaintiff, 13 -vs-14 MICHELS POWER, A DIVISION OF MICHELS CORPORATION and MICHELS CORPORATION, 15 Third-Party Defendant. 16 17 EXPERT TESTIMONY of MORRIS JOHN MACH, held on 18 October 19, 2011, commencing at 10:05 a.m., at the 19 offices of Powers & Santola, LLP, 39 North Pearl 20 Street, Albany, New York 12207, pursuant to Notice; 21 before Susan Florio, RPR and Notary Public in and 22 for the State of New York. 23

[MORRIS JOHN MACH, CSP - By Mr. Glasheen] 1 sensitive about whenever cranes are working 2 underneath their power lines, so it would be like 3 a red flag going up when any kind of action goes 4 underneath a power line. 5 Ο. Well, this crane wasn't actually under 6 the power line, true, when it was parked there? 7 Close enough to contact them. Α. 8 But it wasn't -- it was just sitting Q. 9 there parked, true? 10 Before they started using it? Α. 11 Yes. 12 0. My understanding, yes. 13 Α. Q. All right. So, it's when they started 14 using it that the necessity for grounding the 15 crane occurred, true? 16 Correct. Α. 17 And in terms of at that point in time if 18 Q. someone observed it, they might have said something, 19 but in terms of the testimony in this case did 20 you -- you did not review the testimony of Greg 21 Miller, the LG superintendent, did you? 22

I don't think I did.

23

Α.

[MORRIS JOHN MACH, CSP - By Mr. Glasheen] 1 Plaintiff's Exhibit 10H at a deposition dated 2 2/7/11, and I'd like to show you Exhibit 2, which 3 has been marked for identification at this 4 5 deposition, please. Yes. Α. 6 Have you seen one of those photographs 7 Ο. before? 8 I believe I have, yes. Α. 9 Can we agree that both of those Q. 10 photographs show the front of the crane with the 11 grounding rod not driven into the ground? 12 13 Α. Yes. And that's one of the reasons why you 14 Ο. concluded that the crane wasn't grounded, correct? 1.5 Yes. 16 Α. Now, in these photographs do you Sure. 17 Ο. also see a hard hat and some work boots sort of 18 between the crane and the caisson? 19 Α. Yes. 20 And would you disagree with me if I told 21 you that's where Mr. Bruno was located at the time 22 of the incident?

## [MORRIS JOHN MACH, CSP - By Mr. Glasheen]

- A. No. I wouldn't disagree with you.
- Q. All right. And from that position you would conclude that the fact that the crane was not grounded would be fully visible to Mr. Bruno, isn't that a fair statement?

 $$\operatorname{MR}.$$  HIGGINS: Objection to the form.

- A. I suppose it would, yes.
- Q. Thank you. Now, in that section,
  Mr. Mach, you indicate that the equipment ground
  should be able to withstand the expected fault
  current for the lines in the area. What did you
  mean by that?
- A. It should be able to take the fault on the landline that would operate the breakers to trip it out. So, it should be able to withstand the amount of fault current that the line can put out to operate its own protective mechanisms.
- o. So, if I'm understanding what you are saying, it needs to be able to withstand the amount of fault current necessary to trigger the breaker at the substation?

## [MORRIS JOHN MACH, CSP - By Mr. Glasheen]

- A. Depending on the ground.
- Q. All right. And in terms of a grounding rod, typically those are made of copper, isn't that true?
- A. Copper clad. I would say, yeah. Steel rod has copper around it.
- Q. And the reason why they have copper is that's a wonderful conductor of electricity, isn't it?
  - A. That's correct.
- Q. So, if that grounding rod were driven into the ground that would provide another good path to ground, isn't that true?
  - A. Oh, sure.
- Q. And in terms of the crane outriggers, the crane grounding rods, those were all better paths to ground than Mr. Bruno himself; is that true?
  - A. I'm sorry?
- Q. The four outriggers and the grounding rod all provided better paths to ground for the fault current than did Mr. Bruno, isn't that true?
  - A. That's depending on the soil, but

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[MORRIS JOHN MACH, CSP - By Mr. Glasheen]

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for example, in the extent of injuries that he incurred?

- A. Could have, yes. But mainly -- actually, let me revise that. Mainly it would have involved, whether the ground was on there or not it still, a good likely or fair likelihood that an injury would have occurred.
- Q. All right. But it's with a grounding rod there was the possibility it might have reduced the extent of his injuries, correct?
  - A. Might have, yes.
- Q. All right. I know this is slow going. So, whenever you need to take a break, let us know.
  - A. I'm all right now.
- Q. In the next section, number 5, you indicate that Niagara Mohawk and LG Constructors allowed work to be performed by a crane operator in close proximity to their power lines in a high humidity and heavy rain environment. Do you see that, sir?
  - A. Correct.

## [MORRIS JOHN MACH, CSP - By Mr. Glasheen]

- Q. All right. So, when Parker and Bruno picked up these two caissons and went down to the area down near the Corellis yard, that really was a situation where they needed to do a new job brief, isn't that true?
  - A. That would be true.
- Q. All right. And it's common on construction sites where a foreman who has several people in his crew may not be with them through the course of the entire day, isn't that true?
  - A. That would be true.
- Q. Okay. And, as a matter of fact,
  Mr. Parker had testified that Beatty, Dave Beatty,
  wouldn't be with them at all times. Do you recall
  that testimony by Parker?
  - A. Yes.
- Q. All right. So that in that situation it would be incumbent on the crew members who were actually doing the work to conduct job assessment and to perform a job brief at the site where they were going to do the new work activity, so to speak, isn't that true?

## [MORRIS JOHN MACH, CSP - By Mr. Glasheen]

- A. Yeah. The lead person, yes.
- Q. All right. Now, I'd like to show you

  Exhibit 48 from the deposition dated 12/1/10, and

  if you take a look at that, sir, and I'm going to

  represent to you that that was a job brief

  prepared on the day before the accident June 25th

  of 2009, and the handwriting is the writing of

  Martin Parker, and if you take a moment and take a

  look at that, please.
- 11 A. Okay.

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- Q. All right. May I see it?
- A. (Handed.)
  - Q. Thank you. In terms of this job brief the day before, it indicates that one of the potential hazards is electric shock. Do you see that?
    - A. Yes. I do.
    - Q. All right. And it indicates on required actions to properly rig and secure all loads or words to that effect?
- 22 A. Yes.
  - Q. And it indicates that they need to adhere

## [MORRIS JOHN MACH, CSP - By Mr. Glasheen]

- Q. One shot it's called sometimes?
- A. Right.

- Q. And what would happen according to his testimony is that during the course of the construction day the NRA would be in effect. At the end of the day he would then talk with Greg Miller and Greg would make -- would talk with the Michels people and assure that everyone was off the right of way, Mr. Drischler would then contact Niagara Mohawk's transmission control center and tell them everybody is off, it's okay to put the line back in regular operation during the nighttime hours. That's a common practice, isn't it, on construction sites?
  - A. Yes. It is.
  - o. With power lines?
  - A. Yes. It is.
- Q. And then the testimony of Mr. Drischler was that in the morning he would talk with Greg Miller, who would be in contact with the Michels folks, and when he would call the transmission control center and take the -- put the NRA in

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1 | [MORRIS JOHN MACH, CSP - By Mr. Glasheen]

effect and advise Greg Miller that that was the case, Greg Miller would then cascade that

information to the Michels' representatives.

Again, that's a normal pattern of controlling the line, isn't it true, in a construction situation?

A. Yeah. Generally, yeah.

Q. All right. And in terms of between Mr. Drischler and Mr. Miller, there was constant communication both at the end of each day, during the -- at the beginning of each day and during the course of the day as far as status of lines. Do you have any reason to disagree with that?

A. No.

Q. Okay. And that's typical, isn't it, how a power company and general contractor interact, the power company has to be in contact with the control center to make sure that the lines are being taken out or put back in as necessary, isn't that true?

- A. Yeah. True.
- Q. All right. And then in turn, the chain of command was LG Constructors through Greg Miller

[MORRIS JOHN MACH, CSP - By Mr. Glasheen]

would contact either Bruno Poyier or Claude Vin of Michels and advise them as to the status of the line and, that again, that's typical standard practice in terms of a transmission line, construction job, isn't that true?

A. True.

- Q. All right. And then the testimony has been through Dave Beatty that Michels, Drilled Foundations would have a morning meeting with its people or sometimes it was a joint meeting with the line crews at which time they would be advised of the status of each line and told whether a line was energized or de-energized. Were you aware of that practice?
- A. Yeah. I've heard that. I've read that somewhere that that was the case.
- Q. All right. And were you aware that there was testimony by Mr. Beatty that, in fact, in the morning meetings they would be told as far as the status of the number 17 line and they were advised, the crews were advised that the line was energized and on a one shot?

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[MORRIS JOHN MACH, CSP - By Mr. Glasheen]

away from the line, they could have done the work with just the two of them, isn't that true?

- A. True.
- Q. All right. You would agree with me, wouldn't you, sir, that it's a good practice that if you are operating a crane and can avoid being near a power line that's the better course of action to follow, isn't that true?
  - A. True.
- Q. All right. Now, in terms of the material that was provided to you by Mr. Santola, did you see this photograph, and I'm going to show you Exhibit 35 from the deposition dated 12/1/10. And I'm going to represent to you, Mr. Mach, that photograph was taken on the day of the accident by the OSHA investigator and it shows the westerly portion on the left-hand side of the Corellis laydown yard.
  - A. Okay.
- Q. Do you see in that photograph some caissons?
  - A. Yes. I do.

1	[MORRIS JOHN MACH, CSP - By Mr. Glasheen]
2	Q. Do you see open space in or around the
3	vicinity of those caissons?
4	A. Yes.
5	Q. Do you see that that open space and where
6	those caissons are located are away from the power
7	lines that are located on the Niagara Mohawk right
8	of way?
9	MR. HIGGINS: Object to the form.
10	A. I see it's open space.
11	Q. All right. And assuming and when you
12	have a mobile crane it means that it can be moved,
13	doesn't it, sir?
14	A. Yes.
15	Q. So, that crane could have been moved over
16	from where it was to that location if the operator
17	so desired, isn't that so?
18	A. Correct.
19	MR. HIGGINS: That location being
20	where the caissons are shown?
21	MR. GLASHEEN: Yes. I'm sorry,
22	Tim. Yes. To the location shown in that
23	photograph.

- Q. And similarly the flatbed tractor-trailer that was being driven by Mr. Bruno could be moved over to that location as well, isn't that true?
  - A. Yes.

- Q. And the unloading operation that was -that resulted in this accident could have been
  performed over there, isn't that true?
  - A. As far as I know, yes.
- Q. And had it been performed over there, there wouldn't have been any accident, isn't that true?
  - A. Yes. That would be true.
- Q. Okay. Now I'd like to show you

  Defendants' Exhibit V from the deposition dated

  March 17th, 2011, and I'll ask you to take a look

  at that photograph, please.

And I'm going to represent to you that what you are looking at there is a view to the south towards Route 9 and 20, which is the highway in the background there.

- A. Um-hmm.
- Q. And that photograph depicts the area in

[MORRIS JOHN MACH, CSP - By Mr. Glasheen] 1 front of Structure 29 that had been set aside and for the tying of rebar cages and the placement of 3 caissons. Do you see that? 4 The area where these quys are standing? 5 Beyond there and down in the Yes. 6 Q. vicinity of the Corellis laydown yard. Do you see 7 that, sir? 8 Yes. 9 Α. And in that photograph in the -- and I'm Q. 10 going to also represent to you that that area in 11 front of Structure 29, the steel poles that you 12 see there --13 Um-hmm. Α. 14 -- that is the area that was depicted in 15 Q. change order 37 that you looked at earlier. 16 you recall that, sir? 17 Yeah. Α. 18 All right. And as you look at that 19 0. photograph do you see anything in that area that 20 change order 37 related to? 21 No. Α. 22

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No.

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As a matter of fact that area is

- 131 [MORRIS JOHN MACH, CSP - By Mr. Glasheen] 1 empty, isn't it, sir? 2 Α. Yes. 3 So, that area is an area where that Q. 4 mobile crane could have been moved to on the 5 morning of the accident, isn't that so? 6 7 I suppose so, yes. And similarly the tractor-trailer that Q. 8 Mr. Bruno operated could have been moved there as 9 well, isn't that true? 10 Α. True. 11 And the unloading operation that they 12 Q. were conducting could have been conducted there, 13 isn't that true? 14 Yes. 15 Α. And had it been conducted there it would 16 have been away from where the number 17 line was 17 located, isn't that so? 18 19 Α. Yes. And likewise had the unloading operation 20 Q.
  - Q. And likewise had the unloading operation been conducted there, no accident would have happened, isn't that so?
  - A. That's true.

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- Q. And likewise with both of those areas that we've talked about, the one in Exhibit No. 35 and this Exhibit V, there would have been no need for a spotter because they weren't going to be close to overhead energized power lines, true?
  - A. True.

- Q. So they could have performed the work with just the two-man crew, true?
  - A. True.
- Q. I'm going to show you Exhibit 22 for identification and I'm going to represent to you that that shows an area located to the north of Structure 30, sort of between Structure 30 and where the laydown area that was depicted in change order number 24 was located.

Does that situate you so you know what you are looking at, sir?

- A. Yeah.
- Q. All right. And does that show, does that photograph show an open area to the north of structure number 30?
  - A. An open area, yes.

# [MORRIS JOHN MACH, CSP - By Mr. Glasheen] Q. And is that open area on the portion of the right of way where the number 5 line is located?

- A. There's an open area there, yes, and under number 5 but.
- Q. And it's away from the number 17 line, isn't that so?
- A. Well, that's kind of hard to tell. This is number 17, right here, right?
- Q. Right. And I'm talking about this -- it's hard to tell in the photograph.
  - A. It's away -- 5 is away from 17, yeah.
- Q. And that open area is by the number 5 line, isn't that so?
  - A. Yes.

- Q. All right. And that's another area where the crane could have been moved to, isn't that so?
  - A. Yeah. That's true.
- Q. And another area where the tractor-trailer could have been moved to so that the unloading operation would occur away from the number 17 line, isn't that so?

1	[MORRIS JOHN MACH, CSP - By Mr. Glasheen]
2	A. That's so.
3	Q. And had the unloading operation been
4	conducted there, that would have not required the
5	use of a spotter because it would be away from the
6	number 17 line, isn't that so?
7	A. That's true.
8	Q. And had the unloading operation been
9	conducted there, there would have been no
10	accident, isn't that so?
11	A. Shouldn't have been, no.
12	MR. GLASHEEN: The date of that
13	exhibit was 12/1/10.
14	Q. Had Mr. Bruno and Mr. Parker for some
15	reason absolutely wanted to conduct that operation
16	there, it's a fair statement they could have
17	requested a third person to assist them and to act
18	as a dedicated spotter, isn't that so?
19	MR. HIGGINS: Objection. "There"
20	meaning?
21	MR. GLASHEEN: There by Structure
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- Q. And it would apply to Mr. Parker, wouldn't it?
  - A. Sure.

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- Q. And in terms of an employee working safely, it's also true, isn't it, that the greater the knowledge and experience level of the particular employee, the better equipped they are to recognize dangers and to avoid them as needed, isn't that true?
  - A. Yes.
- Q. All right. Now, when you did your expert report you did not have the testimony of Mr. Bruno, did you?
  - A. I don't think I did.
- Q. No. You got it subsequent, if I understood your testimony earlier. And, likewise, you did not have the testimony of Mr. Parker, true?
  - A. I've read a report about --
- 21 Q. Go ahead.
  - A. -- some kind of hearing.
- 23 Q. I understand what you are saying. You

1	[MORRIS JOHN MACH, CSP - By Mr. Glasheen]
2	obtained his crane certification back in 1973?
3	A. Yeah. I believe you are right.
4	Q. So, he had been a crane operator for over
5	40 years as of the time of this accident?
6	A. Right.
7	Q. And likewise he had occasion to operate
8	around power lines on numerous occasions, do you
9	recall that?
LO	A. Right.
L1	Q. All right. So these two guys were very,
L2	very experienced electric line construction
L3	workers, weren't they?
L <b>4</b>	MR. HIGGINS: Objection to the
L5	form.
L6	A. Yeah. I would assume they were. Yeah.
L7	Q. And based on that job brief that I showed
L8	you a while earlier that was dated June 25th of
19	2009, they knew the ins and outs of working around
20	power lines, isn't that obvious? Isn't that true?
21	MR. HIGGINS: Objection. Objection
22	to form.
23	A. I would assume they did. Yes.

- Q. All right. And in terms of the safety training that you've given in connection with operations of mobile equipment in and around the vicinity of energized power lines, great caution is always a watchword, isn't it true?
  - A. Sure.

- Q. And if there is any doubt whatsoever one has to assume that the line is energized, isn't that so?
  - A. True.
- Q. All right. And in the absence of being affirmatively advised by the power company that a line is de-energized and seeing visible grounds, you must treat it as an energized line, isn't that true?
  - A. That's true.
- Q. And in all these photographs that you saw that Mr. Santola provided to you, there were no visible grounds on those lines, were there?
  - A. No.
- Q. And it's a fundamental rule that before when you change a job location or embark on a

1	[MORRIS JOHN MACH, CSP - By Mr. Glasheen]
2	so?
3	A. Yes.
4	Q. And likewise Mr. Parker had the
5	opportunity to move that crane to a different
6	location to avoid a potential contact with the
7	overhead line?
8	A. Yes.
9	Q. And in terms of the operation of a crane
10	in the vicinity of overhead lines they had an
11	obligation to use a dedicated spotter, didn't
12	they?
13	MR. HIGGINS: Objection to form.
14	Who's "they"?
15	MR. GLASHEEN: Thank you, Tim.
16	Q. Mr. Parker and Mr. Bruno.
17	A. They had an obligation since they were
18	operating underneath the line?
19	Q. Yes.
20	A. Yes.
21	Q. And in terms of the unloading operations
22	it's also a standing rule that the groundmen
23	should stay clear of the load to avoid being

[MORRIS JOHN MACH, CSP - By Mr. Glasheen]

struck by it or getting under it, isn't that so?

A. Yes.

Q. And generally in terms of the unloading

of objects from a tractor-trailer by the means of

of objects from a tractor-trailer by the means of a crane it's recommended to use a tag line to accomplish that, isn't that the case?

A. Correct.

- Q. And you understand from the testimony of Mr. Parker that no tag line was used in this situation, true?
  - A. From what I understand.
- Q. And you understand from the testimony of Mr. Parker that Mr. Bruno was in close proximity, if not touching the caisson, just prior to the occurrence of the accident?
  - A. Yes.
- Q. And with your electric background did you understand that in order to initiate an arc from the 115 kV line the top of the boom would need to get within a matter of several inches to the line to do that?
  - A. Yes.

- Q. And did you have any understanding of the conductor to ground clearances at that site?
  - A. 49 feet, 50 feet.

- Q. All right. And if I told you that the NESC conductor to ground clearance for a 115 kV line such as the number 17 line was approximately 21 feet, 6 inches, that would indicate that the clearances were far in excess of the NESC requirements, isn't that so?
  - A. That's correct.
- Q. Were you aware of the testimony of Mr. Miller that he had observed the removal of caissons from a flatbed trailer by means of a front-end loader with forks on it?
  - A. Yeah. I read that.
- Q. All right. And that was another method available to unload caissons from the trailer of Mr. Bruno, isn't that so?
  - A. Sure.
- Q. All right. And there was testimony that indicated that there was a front-end loader.
  - Mr. Bruno testified that he had on occasion

[MORRIS JOHN MACH, CSP - By Mr. Glasheen]

operated a front-end loader in the Corellis

laydown yard with forks.

So, assuming that to be the case, they could have checked over in the laydown yard to see if there was equipment that could have been used other than the crane, isn't that so?

A. Sure.

- Q. All right. And had they used a front-end loader with forks, even with the truck parked where it was, that would not have caused any violation of the minimum approach distances, correct?
  - A. No. It shouldn't.
  - Q. That would have been a safe way to unload the caissons even where they were located under the number 17 line, true?
    - A. True.
- Q. So, in terms of the operation, the unloading operation that occurred on the morning of this accident, in terms of the actions of Mr. Bruno and Mr. Parker with respect to the crane and the unloading operation, basically they broke

1	[MORRIS JOHN MACH, CSP - By Mr. Cerussi]
2	just about every safety rule you could think of in
3	terms of the operation of a crane in the vicinity
4	of an energized overhead line, isn't that so?
5	MR. HIGGINS: Objection to form.
6	A. Yeah. There was a lot of violations
7	here.
8	MR. GLASHEEN: Okay. Thank you.
9	That's all the questions I have.
10	BY MR. CERUSSI:
11	Q. Good afternoon, Mr. Mach. My name is Tom
12	Cerussi. I'm with the law firm of Cerussi &
13	Spring and I represent the Defendant LG
14	Constructors, Inc. I have some follow-up
15	questions concerning your earlier testimony and
16	your report that you generated in this matter.
17	Mr. Mach, when you were retained by the
18	firm of Powers & Santola what was the assignment
19	that you were given?
20	A. To look at the material that they were
21	going to send me and come up with an opinion.
22	Q. Were you to evaluate the facts and
23	circumstances of this accident within your area of

- [MORRIS JOHN MACH, CSP By Mr. Pinter]
  linemen obviously would know it. I'm not -- I
  don't think Parker was a journeyman lineman.

  Q. True.

  A. So, I mean, maybe he got left out. I
  don't know.
  - Q. If there's testimony that there were morning meetings that Michels had every morning, both the power division and the drilled foundations divisions and Parker and Bruno would attend after they were split after some time, the drilled foundations meeting --
  - A. Right.

- Q. -- not the power meeting?
- A. Right.
  - Q. And there's further testimony that at the drilled foundations meetings all those guys would be told the status of the lines, that's the testimony. Agreed Parker has different testimony. What is your opinion as far as how plausible it is that Parker didn't know for three weeks straight that the number 17 line was energized?
    - A. It seems a bit implausible, yes.

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1	[MORRIS JOHN MACH, CSP - By Mr. Glasheen]
2	further. Thank you.
3	MR. GLASHEEN: Just a quick
4	question.
5	BY MR. GLASHEEN:
6	Q. As far as the work being done by Michels
7	crews, Niagara Mohawk wouldn't direct the means
8	and methods they used to do the work, correct?
9	A. No. They wouldn't.
10	MR. GLASHEEN: Okay. Thank you.
11	MR. CERUSSI: Thank you.
12	MR. BROWER: Thanks.
13	MR. PINTER: Thanks.
14	(Whereupon, the testimony of MORRIS
15	JOHN MACH, CSP, concluded at 3:15 p.m.)
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## **Errata Sheet**

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7	I have read the foregoing record of my
8	testimony taken at the time and place noted in the
9	heading hereof, and I do hereby acknowledge it to
L O	be a true and correct transcript of same.
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#### CERTIFICATION

ability.

I, Susan Florio, Registered Professional Reporter and Notary Public, do hereby certify that I recorded stenographically the proceedings herein at the time and place noted in the heading hereof, and that the foregoing transcript is true and accurate to the best of my knowledge, skill and

IN WITNESS WHEREOF, I have hereunto set my hand this 5th day of November, 2011.

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Susan Nomi

SUSAN FLORIO, RPR

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8	testimony taken at the time and place noted in the
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CERTIFICATION

I, Susan Florio, Registered Professional Reporter and Notary Public, do hereby certify that I recorded stenographically the proceedings herein at the time and place noted in the heading hereof, and that the foregoing transcript is true and accurate to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, I have hereunto set my hand this 5th day of November, 2011.

SUSAN FLORIO, RPR